

Margaret R. Eggers, PhD, RG, CHG

Education

Ph.D., Geology/Sedimentology, University of South Carolina, Columbia, 1987.

M.S., Geology/Structural & Metamorphic, University of South Carolina, Columbia, 1983.

B.S., Geology, Florida State University, Tallahassee, 1981.

40-hour Occupational Safety and Health Administration (OSHA) Health and Safety Training for Hazardous Waste Sites, 1989.

Supervisor Training Occupational Safety and Health Administration (OSHA) Health and Safety Training for Hazardous Waste Sites, 1991.

AHERA Building Inspector Training for Asbestos-containing materials. (1989-1992)



Professional Registrations

Certified Hydrogeologist, California, 1999

Registered Geologist, California, 1995

Registered Geologist, Texas, 2003

Professional Geologist, Arkansas, 1990

Teaching Experience

Associate Faculty, Mira Costa College, Oceanside Campus, "Environmental Geology", 2004-5.

Adjunct Professor, San Diego State University, Graduate Seminar, "Case Studies in Hydrogeology", 1999 and 2002.

Guest Lecturer, Department of Hydrology and Water Resources, University of Arizona, Graduate Seminar, "Advanced Topics in Subsurface Hydrology and Modeling", 2002 and 2004.

Instructor, University of California, San Diego Extension for the Hazardous Materials Management Certification Program, "Environmental Aspects of Soils and Geology", 1993-1994. Guest lecturer through 1997.

Coordinator and Principal Instructor for Health and Safety training programs including OSHA 40-hour Hazardous Waste Site Worker Training, 8-hour OSHA Annual Refresher, and OSHA Site Supervisor courses 1989-1991.

Professional Journal Affiliations

Member, Editorial Board of the *Environmental Forensics Journal*, published by the International Society of Environmental Forensics, 2005-2006.

Professional Affiliations

National Groundwater Association
Geological Society of America
American Association of Petroleum Geologists
Women's Environmental Council
San Diego Environmental Professionals
San Diego Association of Geologists, Secretary 2002-2003, VP 2004, President 2005
Sigma XI Scientific Honor Society

Professional Work Experience

2003 to present	Owner and Principal, Eggers Environmental, Inc., Oceanside, California.
1996 to 2003	Principal Hydrogeologist and Shareholder Hargis+Associates, Inc., San Diego, California.
1995 to 1996	Supervising Geoscientist Remedial Investigations Group, McLaren/Hart Environmental Engineering Corporation, Irvine, California.
1992 to 1995	Staff Hydrogeologist, Hargis+Associates, Inc., La Jolla, California.
1991 to 1992	Lead Geologist, Groundwater Technology, Inc., San Diego, California.
1988 to 1991	Senior Geologist, Shannon & Wilson, Inc., St. Louis, Missouri.
1987 to 1988	Planner III, Regional Planning Council, Baltimore, Maryland.
1983 to 1987	Research Assistant, Fourier Shape and Petrographic Image Analysis Laboratory, Department of Geology, University of South Carolina, Columbia, South Carolina.
1983	Sedimentologist, Glomar Challenger, Deep Sea Drilling Project Leg 94, Scripps Oceanographic Institute and Lamont-Doherty Geological Observatory.
1977 to 1981	Sedimentologist, Core Description and Curatorial Staff, National Science Foundation Antarctic Research Facility, Sedimentology Research Laboratory, Florida State University, Tallahassee, Florida.

Paul C. Johnson, Ph.D.

Dept. of Civil and Environmental Engineering
Ira A. Fulton School of Engineering
P.O. Box 875506
Arizona State University
Tempe AZ 85287-5506
(480) 965-9115 (phone)
(480) 965-8293 (FAX)
paul.c.johnson@asu.edu

Office of the Vice President for Research and
Economic Affairs
P.O. Box 872703
Arizona State University
Tempe AZ 85287-2703
(480) 965-9115 (phone)
(480) 965-8293 (FAX)
paul.c.johnson@asu.edu

Home Address: 11030 N. Royal Ct., Fountain Hills, AZ; (480) 837-2005

Education:

1987	Ph.D. - Princeton University - Chemical Engineering
1984	M.A. - Princeton University - Chemical Engineering
1983	B.S. - University of California, Davis - Chemical Engineering

Academic and Administrative Experience:

2004 – present	Associate Vice President – Research (ASU)
2003 – 2004	Fulton School of Engineering, Associate Dean – Research
2002 – 2003	CEAS Interim Associate Dean - Research
2000 – present	Assistant Chair – Graduate Programs CEE Department
2003 – present	Professor, Arizona State University
1997 - 2003	Associate Professor, Arizona State University (tenured)
1994 - 1997	Associate Professor, Arizona State University (untentured)

Industrial Experience:

1994 – present	Consultant to industry and federal and state agencies
1993 - 1994	Senior Research Engineer, Shell Development, Houston
1990 - 1993	Research Engineer, Shell Development, Houston
1987 - 1990	Associate Research Engineer, Shell Development, Houston

Other:

2003 – present	Editor-In-Chief, <i>Ground Water Monitoring and Remediation</i>
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Principal Areas of Research and Teaching:

chemical migration and fate in the environment	environmental risk assessment
soil and groundwater remediation & aquifer management	groundwater hydrology

Awards & Honor Societies:

White House Closing the Circle Award Winner	2003
National Pollution Prevention Roundtable Most Valuable Pollution Prevention Project Award	2003
CERF Charles Pankow Award for Innovation Finalist	2003
Environmental Security Technology Certification Program (ESTCP) Project of the Year	2002
ASU College of Engineering Teaching Excellence Award	2002
CEAS Alumni SOAR Outstanding Faculty Advisor Award	2002
National Ground Water Association (NGWA) 2001 Outstanding Ground Water Remediation Project Award	2001
AWPCA Quentin Mees Research Award (w/C. Bruce)	2000
ASU Parents Association Teacher of the Year Finalist	2000
ASU College of Engineering Teaching Excellence Award	1998

ASCE Student Chapter Best Teacher Award	1996
AWPCA Quentin Mees Research Award	1995
NGWA/API National Conference Best Paper	1994
Shell Oil Company Recognition Award	1990, 1991, 1993, 1994
Princeton University Wallace Memorial Fellowship in Engineering	1986-1987
University of California Stauffer Chemical Scholarship	1983
University of California ARCO Scholarship	1982
American Military Engineers Scholarship	1982
Associate Western Universities DOE Research Fellowship	1981
Phi Kappa Phi - National Honor Society	
Tau Beta Pi - National Engineering Honor Society	
Pi Mu Epsilon - National Mathematics Honor Society	

PUBLICATIONS

Refereed Archival Journal Papers:

1. Abreu, L. and P.C. Johnson. 2005. Abreu, L. D. V. and P.C. Johnson. Modeling the effect of aerobic biodegradation on soil vapor intrusion into buildings - Influence of degradation rate, source concentration, and depth. To be submitted to Environmental Science and Technology (February 2005).
2. Abreu, L. and P.C. Johnson. 2004. Effect of Vapor Source-Building Separation and Building Construction on Soil Vapor Intrusion as Studied with a Three-Dimensional Numerical Model. Submitted to Environmental Science and Technology (in review).
3. Lundegard, P.D. and P.C. Johnson. 2004. A Composite Plume Approach for the Analysis of Dissolved Contaminants in Ground Water versus Distance from Source Areas. Ground Water Monitoring and Remediation (in press).
4. Johnson, P.C.. 2003. Sensitivity Analysis and Identification of Critical and Non-Critical Parameters for the Johnson and Ettinger Vapor Intrusion Model. Ground Water Monitoring and Remediation (in press).
5. Sigley, J.L., P.C. Johnson, and S.P. Beaudoin. 2003. Use of Nonionic Surfactant to Reduce Sulfuric Acid Mist in the Copper Electrowinning Process. Hydrometallurgy. 70 (2003). 1 - 8.
6. Hers, R. Zapf-Gilje, P. C. Johnson, and L. Li. 2002. Evaluation of the Johnson and Ettinger Model for Prediction of Indoor Air Quality. Ground Water Monitoring and Remediation. 23 (2). 119 - 133.
7. Amerson, I.L., C.L. Bruce, P.C. Johnson, and R.L. Johnson. 2001. A Multi-Tracer Push-Pull Diagnostic Test for In Situ Air Sparging Systems. Bioremediation Journal, 5(4):349-362.
8. Bruce, C.L., I.L. Amerson, R.L. Johnson, and P.C. Johnson. 2001. Use of an SF6-Based Diagnostic Tool for Assessing Air Distributions and Oxygen Transfer Rates during IAS Operation. Bioremediation Journal, 5(4):337-347.
9. Johnson, P.C., A. Leeson, R.L. Johnson, C.M. Vogel, R.E. Hinchee, M. Marley, T. Peargin, C.L. Bruce, I.L. Amerson, C.T. Coonfare, and R.D. Gillespie. 2001. A Practical Approach for the Selection, Pilot Testing, Design, and Monitoring of In Situ Air Sparging/Biosparging Systems. Bioremediation Journal, 5(4):267-281.
10. Johnson, P.C., R.L. Johnson, C.L. Bruce, and A. Leeson. 2001. Advances in In Situ Air Sparging/Biosparging. Bioremediation Journal, 5(4):251-266.

11. Johnson, R.L., P.C. Johnson, T.L. Johnson, and A. Leeson. 2001. Helium Tracer Tests for Assessing Contaminant Vapor Recovery and Air Distribution During In Situ Air Sparging. *Bioremediation Journal*, 5(4):321-336.
12. Johnson, R.L., P.C. Johnson, T.L. Johnson, N.R. Thomson, and A. Leeson. 2001. Diagnosis of In Situ Air Sparging Performance Using Transient Groundwater Pressure Changes During Startup and Shutdown. *Bioremediation Journal*, 5(4):299-320.
13. Johnson, R.L., P.C. Johnson, I.L. Amerson, T.L. Johnson, C.L. Bruce, A. Leeson, and C.M. Vogel. 2001. Diagnostic Tools for Integrated In Situ Air Sparging Pilot Tests. *Bioremediation Journal*, 5(4):283-298.
14. Abranovic, D., P. C. Johnson, R. J. Charbeneau, and T. Hemstreet. 2000. A Graphical Approach for Determining Dilution-Attenuation Factors: Basic Theory and Approach for Submerged Sources. *Groundwater Monitoring and Remediation*.
15. Salanitro, J. P., P. C. Johnson, G. E. Spinnler, P. M. Maner, H. L. Wisniewski and C. L. Bruce. 2000. Field-Scale Demonstration of Enhanced MTBE Bioremediation through Aquifer Bioaugmentation and Oxygenation. *Environmental Science and Technology*. 34(19). 4152-4162
16. Johnson, P.C., A. Das, and C. Bruce. 1999. Effect of Flowrate Changes and Pulsing on the Treatment of Source Zones by In Situ Air Sparging. *Environmental Science and Technology*. 33 (10). 1726-1731.
17. Johnson, P.C., R.L. Johnson, and M.W. Kemblowski. 1999. Assessing the Significance of Vapor Migration to Enclosed-Spaces on a Site-Specific Basis. *Journal of Soil Contamination*. 8 (3). 389 - 421.
18. Johnson, P.C., C. Bruce. R.L. Johnson, and M.W. Kemblowski. 1998. In Situ Measurement of Effective Vapor-Phase Porous Medium Diffusion Coefficients. *Environmental Science and Technology*. 32. 3405-3409.
19. Johnson, P.C.. 1998. An Assessment of the Contributions of Volatilization and Biodegradation to In Situ Air Sparging Performance. *Environmental Science and Technology*. 32 (2). 276-281.
20. Johnson, P.C., R.L. Johnson, C. Neaville, E.E. Hansen, S.M. Stearns, and I.J. Dortch. 1997. An Assessment of Conventional In Situ Air Sparging Tests. *Ground Water*. 35 (5). 765 - 774.
21. Rutherford, K.W. and P.C. Johnson. 1996. Effects of Process Control Changes on Aquifer Oxygenation Rates During In Situ Air Sparging in Homogeneous Aquifers. *Ground Water Monitoring and Remediation*. 16 (4). 132 - 141.
22. Johnson, P. C. and R. A. Ettinger. 1994. Some Considerations for the Design of In Situ Vapor Extraction Systems: Radius of Influence -vs- Radius of Remediation. *Ground Water Monitoring and Remediation*. 14 (3). 123 - 128.
23. Johnson, R.L., P.C. Johnson, D.B. McWhorter, R. Hinchee, and I. Goodman. 1993. An Overview of In Situ Air Sparging. *Ground Water Monitoring and Remediation*. 13 (4). 127 - 135.

24. Benson, D.A., D. Huntley, and P.C. Johnson. 1993. Modeling Vapor Extraction and General Transport in the Presence of NAPL Mixtures and Nonideal Conditions. *Groundwater*. 31 (3). 437 - 445.
25. Johnson, P.C. and R.A. Ettinger. 1991. Heuristic Model for the Intrusion Rate of Contaminant Vapors Into Buildings. *Environ. Sci. Technol.*. 25(8). 1445-1452.
26. Johnson, P.C., C.C. Stanley, M.W. Kemblowski, D.L. Byers, and J.D. Colthart. 1990. A Practical Approach to the Design, Operation, and Monitoring of In Situ Soil-Venting Systems. *Ground Water Monit. Rev.*. 10 (2). 159 - 178.
27. Johnson, P.C., M. W. Kemblowski, and J. D. Colthart. 1990. Quantitative Analysis for the Cleanup of Hydrocarbon-Contaminated Soils by In Situ Soil Venting. *Ground Water*. 3 (28):413-429.
28. Johnson, P.C., P. Nott, and R. Jackson. 1990. Friction-Collisional Equations of Motion for Particulate Flows and Their Application to Chutes. *J. Fluid Mech.*. 210. 501-535.
29. Johnson, P.C. and R. Jackson. 1987. Friction-Collisional Constitutive Relations for Granular Materials, with Application to Plane Shearing. *J. Fluid Mech.*. 176. 67-93.
30. Johnson P.C., M.C. Lagunas-Solar, and M.J. Avila. 1984. The Indirect Production of No-Carrier-Added ^{57}Co via the $^{59}\text{Co}(p,3n)^{57}\text{Ni} \rightarrow ^{57}\text{Co}$ Reaction. *Int. J. Applied Radiat. Isot.* 35(5). 371-376.
31. Lagunas-Solar, M.J. Avila, and P.C. Johnson P.C.. 1984. Cyclotron Production of ^{101m}Rh via Proton-Induced Reactions on ^{103}Rh Targets. *Int. J. Applied Radiat. Isot.* 35(8). 743-748.
32. Lagunas-Solar, M.C., M.J. Avila, N.J. Navarro, and P.C. Johnson. 1983. Cyclotron Production of No-Carrier-Added ^{97}Ru by Proton Bombardment of ^{103}Rh Targets. *Int. J. Applied Radiat. Isot.* 34(6). 915-922.

PUBLICATIONS

Patents:

1. Salanitro, J.P., P.C. Johnson, S.M. Stearns, P.M. Maner, J.H. Miller, and G.E. Spinnler. 2004. In Situ method and Apparatus for Biodegradation of Alkyl Ethers and Tertiary Butyl Alcohol. U.S. Patent 6,776,910 B2.
2. Salanitro, J.P., P.C. Johnson, S.M. Stearns, P.M. Maner, J.H. Miller, and G.E. Spinnler. 2003. In Situ method and Apparatus for Biodegradation of Alkyl Ethers and Tertiary Butyl Alcohol. U.S. Patent 6,503,395 B1.
3. Marsden, A.R. Jr., D.A. Weingaertner, L.W.R. Dicks, A.L. Otermat, P.C. Johnson. 1997. Enhanced Deep Soil Vapor Extraction Process and Apparatus Utilizing Sheet Metal Pilings. U.S. Patent 5,660,500.

4. Johnson, P.C.. 1993. In Situ Soil Heating Press/Vapor Extraction System. U.S. Patent 5,244,310.
5. Johnson, P.C., D.A. Weingaertner, L.W.R. Dicks, A.L. Otermat, and A.R. Marsden, Jr.. 1993. Enhanced Deep Soil Vapor Extraction Process and Apparatus for Removing Contaminants Trapped in or Below the Water Table. U.S. Patent 5,271,693.
6. Dicks, L.W.R., P.C. Johnson, A.R. Marsden, Jr., D.A. Weingaertner. 1993. Modified Heater for In Situ Soil Heating. U.S. Patent 5,233,164.
7. Marsden, A.R., A.L. Otermat, D.A. Weingaertner, P.C. Johnson, L.W.R. Dicks, H.B. Wilde. 1993. Heater Blanket for In Situ Soil Heating. U.S. Patent 5,221,827.
8. Johnson, P.C. and D.A. Weingaertner. 1993. In Situ Thermal Desorption of Contaminated Surface Soil. U.S. Patent 5,193,934.
9. Johnson, P.C. and D.A. Weingaertner. 1992. In Situ Soil Decontamination Process With Subsurface Vapor Recovery. U.S. Patent 5,169,263.
10. Johnson, P.C., J.D. Colthart, A.L. Otermat, D.A. Weingaertner, C.C. Chou, D.L. Byers, S.M. Stearns, A.R. Marsden Jr., and G.M. Deeley. 1992. Soil Decontamination. U.S. Patent 5,114,497.
11. Johnson, P.C., A.L. Otermat, and C.C. Chou. 1991. In Situ Decontamination of Spills and Landfills by Focused Microwave/Radio Frequency Heating and a Closed-Loop Vapor Flushing and Vacuum Recovery System. U.S. Patent 5,076,727.

PUBLICATIONS

National Conference Proceedings Reviewed Papers, Abstracts, and Presentations:

1. Spinnler, G.E., P.C. Johnson, L. Lesser, C.L. Bruce, R. Aravena, J.P. Salanitro, R.L. Johnson. 2003. MTBE and TBA Biodegradation Assessment Under Natural and Engineered Conditions Using Compound-Specific Carbon Isotope Analysis at Port Hueneme, CA. NGWA/API Petroleum Hydrocarbons and Organic Chemicals in Groundwater. August 20- 22. Costa Mesa, CA.
2. Johnson, P.C. and L. Abreu. 2003. Learning Through the Simulation of Vapor Intrusion Scenarios. NGWA/API Petroleum Hydrocarbons and Other Organic Chemicals in Groundwater. August 20 – 22. Costa Mesa, CA.
3. Johnson, P.C., P. Dahlen, E. Henry, and M. Matsumura. 2003. It's Not About Plume Lengths – The Arizona Groundwater Study. NGWA/API Petroleum Hydrocarbons and Other Organic Chemicals in Groundwater. August 20 – 22. Costa Mesa, CA.
4. P.C. Johnson, and K. Miller. 2002. Large-Scale Mixed MTBE-BTEX Plume Containment at Port Hueneme, CA, Using A Combination of Biostimulation and Bioaugmentation. Third International Conference on Remediation of Chlorinated and Recalcitrant Compounds. Monterey, CA. May 20 – 23.

5. Bruce, C.L. and P.C. Johnson. 2001. Effect of Chemical Properties on IAS Treatment: An Evaluation of Field and Lab Data Comparing MTBE vs. BTEX Removal. API/NGWA Conference: Petroleum Hydrocarbons and Organic Chemicals in Groundwater. Houston, TX. November 14 – 16.
6. Johnson, P. C.. 2001. Gaining a Better Understanding of the Johnson and Ettinger Model Through Sensitivity Analysis. API/NGWA Conference: Petroleum Hydrocarbons and Organic Chemicals in Groundwater. Houston, TX. November 14 – 16.
7. Spinnler, G.E., J.P. Salanitro, and P.C. Johnson. 2001. MTBE Remediation at Retail Gas Stations by Bioaugmentation. API/NGWA Conference: Petroleum Hydrocarbons and Organic Chemicals in Groundwater. Houston, TX. November 14 – 16.
8. Salanitro, J.P., P.C. Johnson, C.L. Bruce, Spinnler, G.E., P.M. Maner, D.L. Tharpe, H.L. Wisniewski. 2001. In Situ Bioremediation of MTBE Using Biobarriers of Single or Mixed Cultures. In Situ and On-Site Bioremediation – The Sixth International Symposium. San Diego. June 4 - 7.
9. Spinnler, G.E., P.M. Maner, J.P. Salanitro and P.C. Johnson. 2001. Demonstration of the BioRemedy Process for MTBE Remediation at Retail Gasoline Stations. In Situ and On-Site Bioremediation – The Sixth International Symposium. San Diego. June 4 - 7.
10. Johnson, P.C. and R.A. Ettinger. 2000. Progress Towards Gaining a Better Understanding of Subsurface Vapor Migration. RCRA: Visions for the Future Conference. USEPA. August 15 –18. Washington, D.C..
11. Johnson, P.C. and R.A. Ettinger. 2000. An Empirical Analysis of Data From the Colorado DoT Materials Laboratory Testing Site, Denver CO. RCRA: Visions for the Future Conference. USEPA. August 15 –18. Washington, D.C..
12. Kemblowski, M.W. and P.C. Johnson. 2000. Environmental Monitoring, Modeling, and Management and Bayesian Belief Networks. Envirosoft. June. Bilbao, Spain.
13. Arulantham, R., P. C. Johnson, and M. W. Kemblowski. 2000. Identifying Low-Risk MTBE-Impacted Sites. Pacific Focus Ground Water Conference. February 17 – 18. San Francisco, CA.
14. Salanitro, J.P., P.C. Johnson, G.E. Spinnler, C.C. Neaville, P.M. Maner, S.M. Stearns, C.L. Bruce. 1999. Demonstration of the Enhanced MTBE Bioremediation (EMB) IN Situ Process. In Situ and On Site Bioremediation – Fifth International Symposium. April 19-22, 1999. San Diego, CA.
15. Bruce, C.L., I.L. Amerson, P.C. Johnson, R.L. Johnson. 1999. Diagnostic Tools for Quantifying Oxygen Mass Transfer Rates. In Situ and On Site Bioremediation – Fifth International Symposium. April 19-22, 1999. San Diego, CA.
16. Bruce, C.L., P.C. Johnson, and R.L. Johnson 1998. Methyl Tert-Butyl Ether Removal by In Situ Air Sparging in Physical Model Studies. The First International Conference on Remediation of Chlorinated and Recalcitrant Compounds. May 18-21. Monterey, CA.

17. Johnson, P.C., A. Das, R.L. Johnson, C. Bruce, A. Leeson, D. McWhorter, and R.E. Hinchee. 1997. Removal of Immiscible-Phase Hydrocarbons - Effects of Process Control Changes, Chemical Properties, and Distribution. In Situ and On-Site Bioremediation: The Fourth International Symposium. April 28 - May 1, 1997. New Orleans.
18. Johnson, R.L., P.C. Johnson, A. Leeson, C.M. Vogel. 1997. Air Distribution During In Situ Air Sparging: Tracer and Geophysical Measurements. In Situ and On-Site Bioremediation: The Fourth International Symposium. April 28 - May 1, 1997. New Orleans.
19. Rutherford, K.W., D. Bass, W. McPhee, and P.C. Johnson. 1997. Estimation of Oxygen Mass Transfer Coefficients During In Situ Air Sparging. In Situ and On-Site Bioremediation: The Fourth International Symposium. April 28 - May 1, 1997. New Orleans.
20. Johnson, R.L., P.C. Johnson, A. Leeson, C.M. Vogel. 1997. Air Distribution During In Situ Air Sparging: Tracer and Geophysical Measurements. The Fourth International Symposium - In Situ and On-Site Bioremediation. April 28 - May 1, 1997. New Orleans, LA.
21. Johnson, P.C., A. Das, R.L. Johnson, A. Leeson, D. McWhorter, R. Hinchee, and C.M. Vogel. 1997. Effects of IAS Process Changes on the Removal of Immiscible-Phase Hydrocarbons. The Fourth International Symposium - In Situ and On-Site Bioremediation. April 28 - May 1, 1997. New Orleans, LA.
22. Rutherford, K.W., D. Bass, W. McPhee, and P. C. Johnson. 1997. Estimating Oxygen Mass Transfer Coefficients During Air Sparging. The Fourth International Symposium - In Situ and On-Site Bioremediation. April 28 - May 1, 1997. New Orleans, LA.
23. Westerhoff, P., L. Baker, P. Fox, P. Johnson, and S. Houston. 1997. A Low-Cost Strategy to Treating and Reuse Wastewater in Nogales, AZ. AWRA Long Beach '97. October 19-23.
24. Johnson, P.C., K. Balshaw-Biddle, T. Reeves, and C. Bruce. 1997. In Situ Air Sparging Studies Using the AATDF ECRS Large-Scale Physical Model. AATDF Conference. Rice University. February.
25. Johnson, P.C., R.L. Johnson, C. Neaville, and E.E. Hansen. 1995. Short-Term Pilot Tests - Reliable Indicators of Long-Term In Situ Air Sparging Performance? In Situ and On-Site Bioreclamation Conference - 3rd International Symposium. San Diego. April 24-27.
26. Johnson, R. L., N. R. Thomson, and P. C. Johnson. 1995. Does Sustained Groundwater Circulation Occur During In Situ Air Sparging. In Situ and On-Site Bioreclamation Conference - 3rd International Symposium. San Diego. April 24-27.
27. Rutherford, K. and P.C. Johnson. 1995. Interfacial Mass Transfer During In Situ Air Sparging - Effects of Process Changes and Lithology. API/NGWA Conference: Petroleum Hydrocarbons and Organic Chemicals in Groundwater. Houston, TX. November.
28. Johnson, P.C., R.L. Johnson, C. Neaville, and E.E. Hansen. 1995. Short-Term Pilot Tests - Reliable Indicators of Long-Term In Situ Air Sparging Performance? AWPCA Annual Conference - Quentin Mees Award. Phoenix. May.

29. Wheelless, W., S. Hicken, C. Beitler, J. Rowe, M.A. Robbins, R.E. Hinchee, P.C. Johnson, R.L. Johnson, and D.B. McWhorter. 1995. In Situ Air Sparging - Technology Demonstration for Remediating Groundwater Contaminated with Dissolved-Phase Constituents at Hill Air Force Base. API/NGWA Conference: Petroleum Hydrocarbons and Organic Chemicals in Groundwater. Houston, TX. November.
30. Johnson, P.C., Rounds, D., and C.C. Stanley. 1994. Risk-Based Corrective Action (RBCA) at Petroleum Release Sites. API/NGWA Conference: Petroleum Hydrocarbons and Organic Chemicals in Groundwater. Houston, TX. November.
31. Neaville, C., P.C. Johnson, and R.L. Johnson. 1994. Evaluation of Air Sparging Technology at a Gasoline UST Site. AEHS Petroleum Contaminated Soils Conference. Long Beach, CA.
32. Sabadell, G.P., J.B. Gustafson, P.C. Johnson, E.R. Cruz, L.W.R. Dicks and C.C. Wang. 1993. Evaluation of Soil Vapor Extraction System Design and Operation Utilizing Tracer Tests. Presented at the CSCE-ASCE National Conference on Environmental Engineering. July.
33. Johnson, P.C. and C.C. Stanley. 1993. An Integrated Exposure/Risk-Based Corrective Action Approach for Underground Storage Tank Sites. Presented at the 86th Annual Meeting and Exhibition of the Air & Waste Management Association. Denver, Colorado.
34. Stanley, C.C., P.C. Johnson, R.K. Wenzlau, J.L. Rous, J.F. Vargas, and J.L. Peterson. 1992. An Exposure/Risk-Based Corrective Action Approach for UST Sites. Proceedings of Petroleum Hydrocarbons and Organic Chemicals in Groundwater. Houston, TX. November.
35. Johnson, P.C., M.W. Kemblowski, and J.D. Colthart. 1988. Practical Screening Models for Soil Venting Applications. Proceedings; Petroleum Hydrocarbons and Organic Chemicals in Ground Water Conference, National Water Well Association, American Petroleum Institute; Houston, TX.

PUBLICATIONS

Books, Book Chapters & Monographs:

1. Johnson, P.C. 2000. Chapter 14: Aquifer Restoration via In Situ Air Sparging. In Standard Handbook of Environmental Science, Health, and Technology (J. Lehr, ed.). McGraw-Hill.
2. Johnson, P.C.. 1999. Chapter 23: Hydraulic Design for Groundwater Contamination. Hydraulic Design (L. Mays, ed.). McGraw-Hill. 23.1 – 23.68.
3. Dablow, J.F., J.A. Pearce, P.C. Johnson. 1998. Steam and Electro-Heating Remediation of Tight Soils. Ann Arbor Press.
4. Johnson, P. C. and R. A. Ettinger. 1997. Some Considerations for the Design of In Situ Vapor Extraction Systems: Radius of Influence -vs- Radius of Remediation. Subsurface Restoration (C.H. Ward, J.A. Cherry, M.R. Scalf, editors). Ann Arbor Press. 209 - 216.

5. Hinchee, R.L., R.N. Miller, and P.C. Johnson. 1995. In Situ Aeration: Air Sparging, Bioventing, and Related Remediation Processes. Battelle Press. ISBN 1-57477-003-9.
6. Johnson, P.C., G.E. Hoag, R.H. Hinchee, R.A. Brown, and A.L. Baehr. 1994. Innovative Site Remediation Technology: Vapor Extraction-Based Technologies (Soil Vapor Extraction, Bioventing, Air Sparging, and Thermally-Enhanced Soil Vapor Extraction). USEPA/AAEE WASTECH Monograph. ISBN 1-883767-08-3.
7. Johnson, P.C. and A.J. Stabenau. 1991. HyperVentilate - A Software Guidance System Created for Vapor Extraction Applications - Users Manual. USEPA 600/R-93/028.
8. Johnson, P.C., R.L. Johnson, C. Neaville, E.E. Hansen, S.M. Stearns, and I.J. Dortch. 1995. Do Conventional Practices Indicate In Situ Air Sparging Performance?. In In Situ Aeration: Air Sparging, Bioventing, and Related Remediation Processes (Hinchee, Miller, Johnson, eds.). Battelle Press. 1 - 20.
9. Bedient P.B. and P.C. Johnson. 1992. Soil Vapor Extraction Systems. Groundwater Remediation. Charbeneau, R.J., P.B. Bedient, and R.C. Loehr Eds.. Technomic Publishing Inc.. 143-160.
10. Johnson, P.C., C.C. Stanley, D.L. Byers, D.A. Benson, and M.A. Acton. 1991. Soil Venting at a California Site: Field Data Reconciled with Theory. Hydrocarbon Contaminated Soils and Groundwater: Analysis, Fate, Environmental and Public Health Effects, Remediation, Vol I. P.T. Kostecki and E.J. Calabrese (eds.). Lewis Publishers. 253 - 282.
11. Rixey, W.G., P.C. Johnson, G.M. Deeley, D.L. Byers, and I.J. Dortch. 1991. Mechanisms for the Removal of Residual Hydrocarbons for Soils by Water, Solvent, and Surfactant Flushing. In Petroleum Contaminated Soils Volume 4 (P.T. Kostecki and E.J. Calabrese Eds.). Lewis Publishers.
12. Johnson, P.C., Hertz, M.B. and D.L. Byers. 1990. Estimates for Hydrocarbon Vapor Emissions Resulting from Service Station Remediations and Buried Gasoline-Contaminated Soils. In Petroleum Contaminated Soils Volume 3 (P.T. Kostecki and E.J. Calabrese Eds.). Lewis Publishers. 295-326.

PUBLICATIONS

Other Publications:

1. Hay-Wilson, L., P. C. Johnson, and J. Rocco. 2005. Collecting and Interpreting Soil Gas Samples from the Vadose Zone: A Practical Strategy for Assessing the Subsurface-Vapor-to-Indoor-Air Migration Pathway at Petroleum Hydrocarbon Sites. American Petroleum Institute.
2. Johnson, P.C., K. Miller, and C. L. Bruce. 2004. A Practical Approach to the Design, Monitoring, and Optimization of In Situ MTBE Aerobic Biobarriers. <http://docs.serdp-estcp.org/viewfile.cfm?Doc=CU0013%2DTR%2D01%2Epdf>.

3. Johnson, P.C., K. Miller, and C. L. Bruce. 2004. In Situ Bioremediation of MTBE in Groundwater – Final Technical Report. <http://docs.serdp-estcp.org/viewfile.cfm?Doc=CU%2D0013%2DFR%2D01%2Epdf>.
4. Johnson, P.C., K. Miller, and C. L. Bruce. 2004. In Situ Bioremediation of MTBE in Groundwater – Cost and Performance Report. <http://www.estcp.org/documents/techdocs/CU-0013.pdf>.
5. Johnson, P.C., P.D. Lundegard, J. Catts, D. Eley, K. Schroeder, E. Nichols, David Peterson. 2004. Dissolved Total Petroleum Hydrocarbons (TPH) Groundwater Plume Stability at the Former Guadalupe Oil Field.
6. Johnson, P.C., P.D. Lundegard, J. Catts, K. DiSimone, D. Eley, K. Schroeder. 2003. Source Zone Natural Attenuation Field Measurements, Data Interpretation, and Data Reduction at the Former Guadalupe Oil Field (Version 2.1). Ratified December 18.
7. Roggemans, S., C.L. Bruce, and P.C. Johnson. 2002. Vadose Zone Natural Attenuation of Hydrocarbon Vapors: An Empirical Assessment of Soil Gas Vertical Profile Data. American Petroleum Institute Technical Report.
8. Spinnler, G.E., P.C. Johnson, K. Miller. 2002. Bioaugmentation Field Testing for MTBE Treatment. USEPA Ground Water Currents. October. Issue 41.
9. Johnson, P.C.. 2002. Sensitivity Analysis and Identification of Critical and Non-Critical Parameters for the Johnson and Ettinger (1991) Vapor Intrusion Model. American Petroleum Institute Technical Report.
10. Johnson, P.C., R.A. Ettinger, J. Kurtz, R. Bryan, and J.E. Kester. 2001. Empirical Assessment of Subsurface Vapor –to- Indoor Air Attenuation Factors and Comparison with Theory for the CDOT-MTL Denver Site. American Petroleum Institute Technical Report.
11. Johnson, P.C., M. W. Kemblowski, and R.L. Johnson. 1998. Assessing the Significance of Subsurface Contaminant Migration to Enclosed Spaces: Site-Specific Alternatives to Generic Estimates. American Petroleum Institute Publication No. 4674. December.
12. Johnson, P.C., D.Abranovic, R.J. Charbeneau, and T. Hemstreet. 1997. Technical Background Document for the Graphical Approach for Determining Site-Specific Dilution-Attenuation Factors (DAFs). American Petroleum Institute Publication 4659.
13. Johnson, P.C., D.Abranovic, R.J. Charbeneau, and T. Hemstreet. 1997. User's Guide for the Graphical Approach for Determining Site-Specific Dilution-Attenuation Factors (DAFs). American Petroleum Institute Publication 4659.
14. American Society for Testing and Materials. 1997. Standard Guide for Risk-Based Corrective Action (RBCA) at Chemical Release Sites.
15. Johnson, P.C.. 1997. Application of Risk-Based Corrective Action at a Petroleum Release Site. United States Environmental Protection Agency.

16. American Society for Testing and Materials (P.C. Johnson lead author). 1995. Standard Guide for Risk-Based Corrective Action (RBCA) at Petroleum Release Sites. E1739-95 (updated and modified version of ASTM ES-38 below).
17. American Society for Testing and Materials (P.C. Johnson lead author). 1994. Emergency Guide for Risk-Based Corrective Action (RBCA) at Petroleum Release Sites. ES-38.
18. Johnson, P.C.. 1987. Frictional-Collisional Relationships for Particulate Flows and Their Application to Plane Shear Flows. Ph.D. Thesis. Department of Chemical Engineering. Princeton University.

Invited Presentations/Papers:

1. Johnson, P.C. and L. D. V. Abreu. 2004. Advances in the Modeling of Vapor Migration to Buildings. Annual International Conference on Soils, Sediments & Water. University of Massachusetts. October.
2. Johnson, P.C.. 2002. Confusion and Delusion in the World of Vapor Intrusion. Keynote Speech – First Annual Midwestern States Risk Assessment Symposium. July 16 – 17. Indianapolis, Indiana.
3. Johnson, P.C.. 2002. Arizona Groundwater Study – Preliminary Results. Fourth Annual Underground Storage Tank Program Conference, Arizona Department of Environmental Quality. June 5. Phoenix, AZ.
4. Johnson, P.C.. 2001. Assessing Risks From Vapor Migration To Enclosed Spaces. Pennsylvania Department of Environmental Protection Annual Conference. June 7. Harrisburg, PA.
5. Johnson P. C.. 2000. Advances in Vapour Intrusion Modelling for Risk-Based Decision Making. 2000 Contaminated Site Remediation Conference. December 4 – 8. Melbourne Australia
6. Johnson, P.C.. 2000. A Retrospective Look to the Future of LUST Issues. Third Annual Underground Storage Tank Program Conference, Arizona Department of Environmental Quality. September 29. Phoenix, AZ.
7. Johnson, P.C. and R.A. Ettinger. 2000. Progress Towards Gaining a Better Understanding of Subsurface Vapor Migration. RCRA: Visions for the Future Conference. USEPA. August 15 – 18. Washington, D.C..
8. Johnson, P.C. and R.A. Ettinger. 2000. An Empirical Analysis of Data From the Colorado DoT Materials Laboratory Testing Site, Denver CO. RCRA: Visions for the Future Conference. USEPA. August 15 – 18. Washington, D.C..
9. Johnson, P.C., C. Bruce, J. P. Salanitro, G. E. Spinnler. 2000. MTBE Biobarrier Studies at Port Hueneme, CA. 2000 National LUST Conference – U.S. Environmental Protection Agency. March. Portland, OR.

10. Johnson, P.C. and J.P. Salanitro. 1999. MTBE Bioremediation. New Jersey Department of Environmental Protection. August 17, 1999. Trenton, NJ.
11. Ward, C.H., P.C. Johnson, and J.B. Hughes. 1999. Plenary Lecture: Enhanced BioAttenuation for Subsurface Remediation. In Situ and On Site Bioremediation – Fifth International Symposium. April 19-22, 1999. San Diego, CA.
12. Johnson, P.C. 1998. An Introduction to Natural Attenuation. First National Stakeholders Forum on Monitored Natural Attenuation. San Francisco. August 31 – September 1. (voted best presentation by attendees)
13. Johnson, P.C.. 1997. Keynote Lecture: Vadose Zone Natural Attenuation - Issues, Modeling Challenges, and Critical Measurements. NGWA Petroleum Hydrocarbons and Organic Chemicals in Groundwater: Prevention, Detection, and Restoration. November 12 - 14. Houston. (voted best presentation by attendees)
14. Johnson, P.C. and R.L. Johnson. 1997. Plenary Lecture: It Looks Good on Paper and You've Paid a Bunch, But is Your Remediation System out to Lunch? The Fourth International Symposium - In Situ and On-Site Bioremediation. April 28 - May 1, 1997. New Orleans, LA.
15. Johnson, P.C.. 1997. Keynote Lecture: US Field and Research Experiences with In Situ Air Sparging. ATV Danish National Groundwater Conference. March 11 - 12. Billund, Denmark.
16. Johnson, P.C.. 1997. Conventional and Innovative In Situ Air Sparging Pilot Test Procedures. ATV Danish National Groundwater Conference. March 11 - 12. Billund, Denmark.
17. Johnson, P.C.. 1996. Risk-Based Corrective Action. Santa Fe Pacific Pipeline Partnership. Los Angeles. August 23.
18. Johnson, P.C.. 1996. Risk-Based Corrective Action Training. USEPA/OUST/ADEQ. Phoenix Arizona. August 15 - 16.
19. Johnson, P.C.. 1996. An Engineer's Introduction to Bioremediation. First Arizona Soil Remediation Conference. Phoenix. May 3.
20. Johnson, P.C.. 1996. Soil Vapor Extraction - Mass Transfer Effects. First Arizona Soil Remediation Conference. Phoenix. May 3.
21. Johnson, P.C.. 1996. Risk-Based Corrective Action for Tribal Lands. USEPA/OUST. Denver Colorado. March 25 - 29.
22. Johnson, P.C.. 1996. Risk-Based Corrective Action. USEPA/OUST and State of Colorado. Denver Colorado. March 19 - 22.
23. Johnson, P.C.. 1995. Risk-Based Corrective Action Demonstration Project. USEPA/OUST and West Virginia Department of Environmental Quality. September 28 - 29.

24. Johnson, P.C.. 1995. Hydrocarbon Removal - How Much is Enough? USEPA OUST Strategic Research Planning Meeting. Las Vegas. September 20 - 21.
25. Johnson, P.C.. 1995. Risk-Based Corrective Action for UST Sites. Arizona Department of Environmental Quality. Phoenix. September 18.
26. Johnson, P.C.. 1995. Research Needs for the Remediation of DNAPL Sites. USAF Research Planning Meeting. Tallahassee. August.
27. Johnson, P.C.. 1995. Modeling Biodegradation in Groundwater - Analytical Models. API Biodegradation Modelling Workshop. Dallas. May 8 - 9.
28. Johnson, P.C.. 1995. In Situ Remediation Technologies. Arizona Water Pollution Control Association. Phoenix. March 17.
29. Johnson, P.C.. 1995. Risk-Based Corrective Action. South Dakota Dept. of Environmental Quality. March 8.
30. Johnson, P.C.. 1995. Aeration-based Remediation Technologies. ARCO Research. Los Angeles. February 7.
31. Johnson, P.C.. 1994. Considerations for the Design and Optimization of Soil Vapor Extraction Systems. Invited presentation at the 1994 API/NGWA Conference: Petroleum Hydrocarbons and Organic Chemicals in Groundwater. Houston.
32. Johnson, P.C., R.L. Johnson, C. Neaville, and E.E. Hansen. 1994. Performance Monitoring and Pilot Testing of In Situ Air Sparging Systems. Invited Presentation at the AGWSE National Education Program. October 9-12. Las Vegas, Nevada.
33. Johnson, P.C.. 1994. Pilot Testing of In Situ Air Sparging Systems. Invited Presentation at the Annual Air Force Center for Environmental Excellence (AFCEE) Conference. San Antonio.
34. Johnson, P.C. and D. Mohr. 1994. Soil Vapor Extraction, Bioventing, and Air Sparging. Invited presentation at the 1st USEPA Strategic Technology Evaluation Workshop. February.
35. Johnson, P.C.. 1993. Risk-Based Corrective Action: Developments and Opportunities. Presented at the 14th Annual Society of Toxicology and Chemistry Meeting. November 14-18. Houston, TX.

RESEARCH FUNDING

Sponsored Research - External Grants and Gifts:

1. Johnson. Critical Evaluation of State-of-the-Art In Situ Thermal Treatment Technologies for DNAPL Source Zone Treatment. Battelle (from ESTCP). \$325,000. 2/1/05 - 1/31/07.
2. Johnson. Field Evaluation of Oxygen Delivery Technologies. Shell Global Solutions. \$50,000. 1/1/05 - 12/31/05.

3. Johnson. Modeling of Vapor Intrusion of Petroleum Hydrocarbon Vapors. Chevron. \$30,000. 1/1/05 – 1/31/06.
4. Johnson. Numerical Modeling of Vapor Intrusion of Petroleum Hydrocarbon Vapors. British Petroleum. \$20,000. 1/1/04 – 1/31/05.
5. Johnson. Mobil Foundation Gift. \$10,000. 1/1/04 – 1/31/04.
6. Johnson. Innovative Technologies for Assessing and Treating Impacted Aquifers. U.S. Navy. \$275,000. 10/1/02 – 9/30/04.
7. Anderson-Rowland and Johnson. Collaborative Interdisciplinary Research Community /Maricopa Engineering Transition Scholars (CIRC/METS). National Science Foundation. \$400,000.
8. Johnson. Predicting Groundwater Quality Downgradient of Permeable Reaction Barriers. U.S. Navy. \$200,000. 10/1/03 – 9/30/05.
9. Johnson. Release of Regulated Substances to Arizona Ground Water – Supplemental Data Collection. Arizona Department of Environmental Quality. 7/1/2002 – 12/31/2002. \$150,000. XCT9312.
10. Johnson. Release of Regulated Substances to Arizona Ground Water. Arizona Department of Environmental Quality. 2/1/2001 – 12/31/2002. \$331,143. XCT9312.
11. Johnson. Remediation of MTBE-Impacted Aquifers. Gift – Shell Oil Foundation. \$10,000. 1/1/02 – 12/31/02.
12. Johnson. Environmental Restoration and Risk Assessment. Mobil Research Foundation. \$10,000. 1/1/02 – 12/31/02.
13. Johnson. Demonstration of the Enhanced MTBE Bioremediation Process at Port Hueneme, CA. Equilon Enterprises. \$80,114. 9/15/99 – 12/31/02. ORCA00310.
14. Johnson. Innovative Technologies for Assessing and Treating MTBE-Impacted Aquifers – Phase 1, 2, and 3. US Navy. \$374,198. 8/30/99 – 5/31/02. XCA6526.
15. Johnson. Assessing the Longevity of Hydrocarbon Source Zones. Rio Tinto. \$51,528. 9/1/99 – 12/31/01.
16. Johnson. NEX MTBE Plume Characterization. US Navy. \$5,000. 6/8/99 – 6/1/00. XCA6525.
17. Johnson. Gift – Remediation of MTBE-Impacted Aquifers. Equilon Enterprises. \$20,000. 12/1/99 – 12/1/00.
18. Johnson. Gift – Remediation of MTBE-Impacted Aquifers. Equilon Enterprises. \$10,000. 10/19/99 – 10/18/00.

19. Baker and Johnson. Management of Nitrate Contaminated Aquifers. Salt River Project. \$22,306. 6/1/99 - 5/16/01. XCT9292.
20. Johnson. Gift - Environmental Restoration and Risk Assessment. Mobil Research Foundation. \$12,000. 12/1/98 - 12/1/99.
21. Johnson. Gift - Remediation of MTBE in Ground Water. Equilon Enterprises. \$86,000. 6/29/98 - 6/1/02.
22. Westerhoff and P.C. Johnson (40%). A Zero-Valent Treatment Process for Removing Nitrate and Perchlorate from Groundwater. American Water Works Association. \$64,812. XCT9283.
23. Johnson and R. Johnson (Oregon Graduate Institute). Vadose Zone Natural Attenuation. American Petroleum Institute. \$95,058. XCT9272. 2/12/97 - 6/1/99.
24. Johnson (Oregon Graduate Institute) and P. Johnson (10%). Natural Attenuation of Dissolved MTBE Plume. American Petroleum Institute. \$90,000. 970060. 2/12/97 - 6/1/99.
25. Johnson (33%), R. Johnson (Oregon Graduate Institute), and M. Kemblowski (Utah State University). Diagnostic Tools for the Monitoring and Optimization of In Situ Air Sparging Systems. American Petroleum Institute. \$133,117. XCT9255. 1/1/96 - 12/31/99.
26. Johnson and M. Kemblowski (Utah State University). Vadose Zone Natural Attenuation. American Petroleum Institute. \$45,864. 970060. 2/12/97 - 12/31/97.
27. Johnson. In Situ Bioremediation of Contaminated Aquifer Soils. Battelle/SERDP/USAF. \$223,152. XCI 6230. 11/1/96 - 12/31/98.
28. Johnson. Chlorinated Hydrocarbon Remediation. Salt River Project. \$22,000. 5/1/95 - 11/1/97. GFT4628.
29. Johnson. Gift - Environmental Restoration and Risk Assessment. Mobil Research Foundation. \$20,000. 2/1/97 - . XC51001.
30. Johnson and R. Charbeneau (U. Texas). Graphical Tools for Determining Site-Specific Risk-Based Soil Screening Levels for the Soil to Groundwater Transport Pathway - A Practical Alternative to Generic Dilution Attenuation Factors. American Petroleum Institute. \$105,000. 2/1/95 - 7/31/96. XCT 8786.
31. Johnson. Iron-Induced Hydrocarbon Degradation. Arizona Department of Water Resources. \$24,470. 95-0483. 11/1/95-2/1/97.
32. Johnson. Regional Water Quality and Supply Management Strategies for the Phoenix Metropolitan Area. Arizona Department of Water Resources. \$24,220. XCT1465. 11/1/95-2/1/97.

33. Fox, S. Houston, W. Houston, P.C. Johnson (25%). Direct Well Recharge of Tertiary Effluent. Arizona Department of Water Resources. \$77,558. XCT9251. 11/1/95 - 2/28/97.
34. Westerhoff, L. Baker, P. Johnson (20%). Linking Nitrate Models to Existing Salt River Project Canal Hydraulic Models to Predict Water Quality Impacts of Well Pumping. Salt River Project. \$25,358. GFT 4653. 6/1/96 - 5/31/97.
35. Johnson. An Evaluation of EPA-Recommended Stack Emissions Monitoring Using Tracer Gas Mass Balance Approach. Salt River Project. \$14,327. GFT 4654. 6/1/96 - 5/31/97.
36. Johnson. Evaluation of the Use of Elemental Iron to Treat DBCP-Impacted Groundwater. Salt River Project. \$9,327. GFT 4654. 6/1/96 - 5/31/97.
37. Baker, P. Westerhoff, P. Fox, S. Houston, P. Johnson (15%), C. Klopotek. US-Mexico Border Water Resource Management Technologies for Sustained Development - Low Cost Strategy for Treating and Reusing Wastewater. SCERP/USEPA. \$135,000. 96287. 9/1/96 - 8/31/97.
38. Johnson. Environmental Restoration and Risk Assessment. Mobil Research Foundation. \$20,000. 10/1/94 -. XC51001.

Sponsored Research - Equipment Loans:

1. Experimental Controlled Release System. DOE/DOD/ AAATDF/ Rice University. 1/1/97 - 12/31/98. 970936.
2. Geoprobe Unit. University of California at Santa Barbara. 6/1/98 - present.

Sponsored Research - Internal Grants:

1. Johnson, P. Westerhoff, S. Beaudoin. Assessing the Impact of New Products and Process Changes on Environmental Resources. \$22,000. CEAS. 7/29/97 - 7/29/98.
2. Johnson. Chemistry Module for Undergraduate Civil Engineers. FEIGIA. \$6000. 6/1/95 - 5/31/96. ST1001.
3. Johnson. Restoration of Aquifers Contaminated with Solvents. FGIA. \$6000. XCRG0110. 4/1/95 - 3/31/96.
4. Johnson. Bioremediation of Contaminated Aquifer Soils. \$8000. OVPR. 9/1/94 - 8/31/95. XCR230.

STUDENT THESES AND DISSERTATIONS SUPERVISED

Masters Degrees Awarded:

Student	Date	M.S. Thesis Title
Roberta Lenski	12/04	Source Longevity Estimates for Ground Water Impacts at the Former Williams AFB Site
Maikel Mendez	5/03	Use of MFI Tests to Project Secondary Effluent Recharge Well Performance in Costa Rica
Makiko Matsumuro	12/02	Occurrence of Fuel Oxygenates in Groundwater at Arizona Leaking Underground Fuel Sites
Suzanne Braunschneider	12/00	Visualization Studies for Bioaugmentation
Jennifer Sigley [w/ S. Beaudoin - ChE]	12/99	Use of Nonionic Surfactants for Reducing Sulfuric Acid Mist Emissions During the Copper Electrowinning Process
Jesko Sollner	6/99	Bioremediation of a MTBE-Contaminated Site - Factors Influencing the Transport of Bacteria Through Soil and Aquifer Sand [<i>Technical University Berlin</i>]
Victoria Hermes	12/98	Numerical Modeling of Vadose Zone Natural Attenuation
Sophie Roggemans	12/98	An Empirical Assessment of Natural Attenuation in the Vadose Zone
Patricia McSparren	12/98	Regional Scale Groundwater Flow Modeling and Assessment of the Impacts of Treated Effluent Discharge near the US-Mexico Border at Nogales
Illa Lyn Amerson	12/97	Diagnostic Tools for the Monitoring and Optimization of In Situ Air Sparging Systems
Angie Luckie	5/97	Long-Term Pump Test Performance of a Deep Horizontal Well in a Highly Heterogeneous Formation
Amar Das	12/96	Laboratory-Scale Study of Volatilization from Residual Source Zones During Air Sparging
David Abranovic	5/96	Graphical Tools for Determining Site-Specific Risk-Based Soil Screening Levels
Kyle Wayne Rutherford	12/95	Effects of Process Control Changes on Interfacial Mass Transfer Rates During In Situ Air Sparging
Jennifer Campbell	12/96	Iron-Induced Degradation of Chlorinated Solvents in Groundwater [MSE Project]
Cindy Barker	5/96	Learning Tools for Undergraduate Students - Chemistry Module for Civil Engineers [MSE Project]

Doctoral Degrees Awarded:

Student	Date	Ph.D. Project Title
Zhuang Liu	12/04	Accelerated Bench-Scale Weathering Tests for Petroleum Hydrocarbons
Paul Dahlen	12/04	Impact of Leaking Underground Storage Tanks on Arizona Groundwater Resources
Ying Xu	4/02	Empirical Analysis of Historical Trends and Prediction of Future behavior of Nitrate Concentrations in Groundwater in the SRP Service Area, AZ
Cristin Bruce.	6/01	Performance Expectations for In Situ Air Sparging Systems

STUDENT THESES AND DISSERTATIONS SUPERVISED

Current Graduate Projects in Progress:

Student	Degree	Project
Lilian Deize de Abreu	Ph.D.	Subsurface Vapor Migration to Enclosed Spaces Modeling (2/05 Target Defense Date)
Luis Lesser	Ph.D.	Spatial and Temporal Variations in MTBE Degrading Activity (5/05 Target Defense Date)
Jennifer Triplett	Ph.D.	Critical Evaluation of Thermal-Based Remediation Technologies
Kade Bond Huthinson	M.S.	Multi-Dimensional Treatability Tests for Thermal Remediation for the Former Williams AFB Site
Pamela Maass	M.S.	Modeling Groundwater Quality Changes Down-gradient of Permeable Reactive Barriers
Tim White	M.S.	In Situ Thermal Treatment Bench-Scale Tests

Post-Doctoral Students:

Eric Henry (2001) – currently at University of North Carolina , Wilmington

Cristin Bruce (2001 – 2003) – currently at Shell Global Solutions, Houston, TX.

Undergraduate Projects Supervised:

1. Shawn Whitmer - Iron-Induced Chlorinated Hydrocarbon Degradation Studies
2. Makiko Matsumuro – WISE Program. Vapor Transport Studies.

PROFESSIONAL AND SCIENTIFIC SERVICE

Local Professional Committees and Appointments:

1. Governor Appointment to the Arizona UST Technical Appeals Board (1998 - 2002)
2. Governor Appointment to the Arizona Water Quality Assurance Revolving Fund (WQARF) Advisory Panel (1997 - 2000)
3. ADEQ Ground Water Study Working Group (1999 - 2000)
4. Arizona Groundwater Clean-up Standards Task Force (1996 - 1997)
5. Arizona Department of Environmental Quality Director's Advisory Panel on Soil Clean-up Standards (1996)

Scientific and Professional Society Memberships:

1. American Society for Testing and Materials - Co-Chairman, Risk-Based Corrective Action for Superfund and Self-Directed Cleanups Task Group (1995 - 1997)
2. Groundwater Remediation Technologies Analysis Center - Guidance Committee Member (1995 - 1998).
3. Advanced Applied Technology Demonstration Facility (DoD - AATDF) Program - Advisory Committee Member (1994 - 1998)
4. National Ground Water Association
5. American Chemical Society
6. American Society of Civil Engineers

Conference Activities:

1. Session Chairman, Third International Conference on Chlorinated Solvents and Other Recalcitrant Compounds. Monterey, CA (2002).
2. Session Chairman, In Situ and On-Site Bioreclamation Conference - 6th International Symposium. June 4- 7. San Diego, CA (2001).
3. Session Chairman, Second International Conference on Chlorinated Solvents and Other Recalcitrant Compounds. Monterey, CA (2000).
4. Session Chairman, In Situ and On-Site Bioreclamation Conference - 5th International Symposium. San Diego, CA (1999).

5. Session Chairman, First International Conference on Chlorinated Solvents and Other Recalcitrant Compounds. Monterey, CA (1998).
6. Session Chairman, In Situ and On-Site Bioreclamation Conference - 4th International Symposium. New Orleans, LA (1997).
7. Session Chairman, Advanced Applied Technology Demonstration Conference. Rice University. Houston, TX (1996).
8. Session Chairman, In Situ and On-Site Bioreclamation Conference - 3rd International Symposium. San Diego, CA (1995).
9. Session Chairman, API/NGWA Conference: Petroleum Hydrocarbons and Organic Chemicals in Groundwater. Houston, TX (1993).

Journal Editor Service:

1. Ground Water Monitoring and Remediation – Editor-in-Chief (2003 -)
2. Journal of Bioremediation (1996 -) - Associate Editor
3. International Journal of Soil Contamination (1996 -) - Editorial Advisory Board

Journal Referee Service:

1. Bioremediation Journal (Associate Editor)
2. Ground Water
3. Ground Water Monitoring and Remediation
4. Environmental Science and Technology
5. Environmental Engineering Science
6. Water Resources Research
7. Separation Science and Technology
8. ASCE Journal of Environmental Engineering
9. Soils (Associate Editor)
10. Water Environment Research

11. Biotechnology and Bioengineering
12. International Journal of Bioremediation

Proposal Reviewer:

1. National Science Foundation - Directorate for Geosciences (1993)
2. USEPA OUST Program (1994 - 1995)
3. Department of Energy/Department of Defense - AATDF Program (1993 - 1997)
4. DOE SERDP Program (1995, 1999)

Other:

Mentor - USEPA EarthVision Program (high school students; 1996 - 1997)

UNIVERSITY COMMITTEE SERVICE AND OTHER SERVICE

University-Level Service

Associate Vice President – Research (2004 – present)

College of Engineering and Applied Sciences/Ira A. Fulton School of Engineering:

CEAS Associate Dean – Research (2003 - 2004)

CEAS Interim Associate Dean – Research (2002 - 2003)

Dean's Personnel Advisory Committee – Chair (2000 – 2001, 2001 – 2002)

Dean's Personnel Advisory Committee (1999 - 2000)

CEAS Research Committee (1998 – 1999)

CEAS ECE-100 Curriculum Committee (2000 – 2001, 2001 – 2002)

Department of Civil and Environmental Engineering:

Associate Chair – Graduate Programs (2000 – 2001, 2001 – 2002)

ASCE Student Chapter Advisor (2001 – 2002)

CEE Personnel Committee - Chair (1997 – 1998, 1998 - 1999)

CEE Advisory Committee (1999 – 2000, 2001 – 2002)

CEE Self-Study Committee (2001 – 2002)

CEE Faculty Search Committee – Chair (1996 – 1997)

CEE Faculty Search Committee (1995 – 1996)

CEE Scholarship Committee (2001 – 2003)

EVALUATION OF INSTRUCTION – AWARDS

ASU College of Engineering Teaching Excellence Award	2002*
ASU Parents Association Teacher of the Year Finalist	2000
ASU College of Engineering Teaching Excellence Award	1998*
ASCE Student Chapter Best Teacher Award	1996

* - The College of Engineering and Applied Sciences (CEAS) presents this award only to two faculty each year.

EVALUATION OF INSTRUCTION – SUMMARY OF STUDENT EVALUATIONS

[max. score = 5.0]

Year and Term	Course #	Course Title	No. Students	Instructor Evaluation	Course Evaluation
2002 Spring	CEE598	Contaminant Fate and Transport	18	4.79	4.43
2001 Fall	CEE540	Groundwater Hydrology (new course)	23	4.73	4.42
2001 Spring	CEE598	Contaminant Fate and Transport	18	4.84	4.45
2000 Fall	CEE540	Groundwater Hydrology (new course)	23	4.73	4.42
1999 Fall	ECE 100 M	Introduction to Engineering: Modeling	45	4.47*	3.71
1999 Fall	CEE 598	Contaminant Fate and Transport	11	4.88	4.49
1998 Fall	ECE 100 M	Introduction to Engineering: Modeling	32	4.68**	3.46
1998 Fall	CEE 560	Soil and Groundwater Remediation	12	4.79	4.32

* - highest rating of ECE100 M instructors that semester - and highest rating achieved by any ECE100 modeling instructors in the three-year period

** - highest rating of ECE100 M instructors that semester

*** - highest rating of ECE300 instructors that semester

For reference, the average ECE100 M instructor rating is approx. 3.9

For reference, the average ECE300 instructor rating is approx. 3.8

EVALUATION OF INSTRUCTION – SUMMARY OF STUDENT EVALUATIONS [CONT.]
 [max. score = 5.0]

Year and Term	Course #	Course Title	No. Students	Instructor Evaluation	Course Evaluation
1998 Spring	CEE 598	Contaminant Fate and Transport	21	4.63	4.31
1998 Fall	CEE 560	Soil and Groundwater Remediation	12	4.79	4.32
1998 Spring	CEE 598	Contaminant Fate and Transport	21	4.63	4.31
1997 Fall	CEE 560	Soil and Groundwater Remediation	20	4.65	4.27
1997 Fall	ECE 300	Intermediate Engineering Design	39	4.50***	4.30
1996 Fall	CEE 361	Introduction to Environmental Engineering	26	4.81	4.18

*** - highest rating of ECE300 instructors that semester

For reference, the average ECE300 instructor rating is approx. 3.8

EVALUATION OF INSTRUCTION – NEW COURSES DEVELOPED

CEE560 – Soil and Ground Water Remediation

CEE598 – Contaminant Fate and Transport

ECE100 – Curriculum Development Committee (ECE100 revisions)

WORKSHOPS/SHORT COURSES DEVELOPED

USEPA Vapor Intrusion Workshop

P. C. Johnson, T. McAlary, I. Hers, H. Dawson, R. Truesdale, H. Schuver and others

- March and October 2004

Vapor Intrusion Workshop

P. C. Johnson, R.A. Ettinger, T. McAlary, E. Nichols, and others

- September and October 2003

In Situ Air Sparging DoD Field Camp Course

P. C. Johnson, R.L Johnson, C. Bruce, P. Dahlen, J. Osgood

- May 2002, July 2002 (twice)

MTBE Remediation

[requested by USEPA and CA State Water Quality Control Board]

- April 1999, May 1999, June 1999, September 1999

Risk Assessment

J. Rocco, L. Hay-Wilson, J. Mercer, J. Till, Johnson, P.C.

Santa Fe, NM.

- April 1998, April 1999.

USEPA/ASTM ES-38 Risk-Based Corrective Action Workshop

ASTM ES-38 Task Group

- August 1996, March 1996, October 1995, September 1995, May 1995, December 1994

Air Sparging Workshop

International Network for Environmental Training

P.C. Johnson, R.E. Hinchee

- December 1994

Risk-Based Corrective Action Workshop

P.C. Johnson, C.C. Stanley, G.E. DeVaul, R.A. Ettinger, P.M. McAllister

- AWMA Conference March 1994, AEHS Conference March 1994

Aeration-Based Technologies (Soil Venting, Air Sparging, Bioventing) - Environmental Education Enterprises

Paul C. Johnson, Ph.D.

P.C. Johnson, R.E. Brown and G.E. Hoag

- October 1995, January 1995, June 1994, March 1994, June 1993, December 1993

Groundwater Contamination from Petroleum Hydrocarbons

University of Texas - College of Engineering, Austin, TX.

Charbeneau, R., P. Bedient, C.Y. Chiang, D.Daniel, P.C. Johnson, R. Loehr, G.E. Speitel Jr., and J. Weaver.

- April 1994, April 1993, October 1992, April 1992, April 1991

USEPA Strategic Technology Evaluation Workshop

P.C. Johnson and D. Mohr

- February 1994

Soil Remediation Workshop - Petroleum Contaminated Soils Conferences

Johnson, P.C. J.P. Salanitro, L.W.R. Dicks, M.H. Huesemann, G.M. Deeley, A.R. Marsden, Jr., W.G. Rixey, and J.B. Gustafson.

- March 1993, September 1992, March 1992, September 1991, March 1991

USEPA Corrective Action Technology Transfer Workshop on NAPL Recovery and Residual Hydrocarbon Removal.

Johnson, P.C., J. Parker, T. Peargin

- January 1993

An Exposure/Risk-Based Corrective Action for UST Sites - Petroleum Contaminated Soils Conferences

Johnson P.C. and C.C. Stanley

- March 1993

HyperVentilate© - A Software Guidance System for Vapor Extraction - Applications.

P.C. Johnson

- USEPA Region VII - March 1994, USEPA Region VII - February 1994

Other Professional Information

Past or Current Consultant to:

US Environmental Protection Agency
US Department of Defense
US Department of Energy
Rice University
Parsons-Engineering Science
Baker Environmental
Mobil Oil Corporation
Lockheed
Occidental Chemical
Motorola
Unocal
Allied Signal/Honeywell
Equilon Enterprises
Groundwater Services, Inc.

IT Corporation
Battelle
Envirogen
Siemens
Phillip Environmental
BP Oil
GeoMatrix
Chevron
State Regulatory Agencies
Lawrence Livermore National Laboratory
Oxygenated Fuels Association
Woodward-Clyde Consultants
Chevron
Geosyntec

Brief Summaries of Selected Consulting Activities

2001 –

2005: Consultant to USEPA on the development of guidance for assessing the significance of the vapor intrusion to indoor air pathway. Co-author of guidance for USEPA RCRA Program on the assessment of the significance of the vapor intrusion to indoor air pathway. Peer reviewer for OSWER guidance document.

2000 –

2001: Neutral Technical Expert on Superfund alternative dispute resolution cost allocation panel for large-scale chlorinated solvent groundwater contamination issue. Involved decisions based on groundwater transport modeling and data interpretation.

2003 –

pres: Technical expert retained by the California State Regional Water Quality Control Board and a major pipeline company to evaluate and comment on characterization and remediation activities associated with a large petroleum spill and MTBE plume.

2002 –

pres: Peer reviewer for SERDP DNAPL treatment technology research projects.

1999 –

pres: Neutral technical expert panel member in the selection and testing of remediation technologies for alternate dispute resolution between the California State Regional Water Quality Control Board and a major oil company.

2000 –

pres: Neutral technical expert for the monitoring and assessment of natural attenuation at a large petroleum spill site for alternate dispute resolution between the California State Regional Water Quality Control Board and a major oil company.

- 2001: Neutral technical expert for dispute between USEPA and DoD concerning remedial alternatives at a former USAF base.
- 1999 –
- 2000: Critical evaluation of data and modeling associated with indoor air impacts caused by large-scale groundwater contaminated by chlorinated solvents in Colorado.
- 1999: Expert witness for aerospace company in environmental damage lawsuit involving alleged impacts from contaminant vapor migration originating from groundwater contaminated with chlorinated solvents.
- 1999: Develop and conduct MTBE remediation workshops for California regulators (pro bono work for CA SWQCB)
- 1998 –
- 2002: Expert retained to peer-review basin-scale groundwater flow and contaminant transport modeling for a chlorinated solvent groundwater contamination application.
- 1998 –
- 2000: Conduct diagnostic tests and assess the performance of IAS/SVE groundwater remediation systems at DoD sites.
- 1998 –
- 1999: Technical expert retained by major oil company for contaminant transport and remediation issues in lawsuit involving groundwater impacts at a service station site.
- 1998: Neutral Technical Mediator in Alternate Dispute Resolution for the State of Pennsylvania between a major oil company and the U.S. Army Corps of Engineers. Focus on relative contributions of each party to hydrocarbon contaminated soils at a Defense Logistics Agency Site.
- 1996 –
- 1998: Expert Panel Member for panel organized by Lawrence Livermore National Laboratory on behalf of DoD – application of risk-based corrective action at 10 DoD facilities.
- 1997 –
- 1998: Expert Witness – litigation involving the appropriateness of corrective action at a tanker truck spill site.
- 1997 –
- 1998: Independent non-testifying peer review of a regional hydrologic and groundwater transport model being developed for application in litigation involving a regional-scale groundwater contamination problem.
- 1997: External Peer Review Panel member for U.S. Air Force remediation project feasibility study at the Massachusetts Military Reservation.

1994 –

1998: USEPA – development and peer review of risk-based corrective action guidance for tribal lands sites.

1994 –

1998: USEPA – training for state regulators in the application of risk-based corrective action approaches

1997 –

1998: BP Oil Co. – independent review and testing of risk assessment software.

1996 –

1998: Rice University/AATDF Program – project shepherd (external peer review, design guidance, and data interpretation) for pilot-scale studies involving the use of innovative remediation technologies (steam injection/soil vapor extraction, radio-frequency heating/soil vapor extraction, surfactant flushing).

1994 –

2002: Various clients – review and comment on design of remediation systems for soil and groundwater cleanup.

1997: Expert Witness – litigation involving assigning responsibility for regional-scale free-product contamination problem in industrial area.